



IAC News No.143

The IAC News introduces significant and unique international projects, technologies, symposium, communication undertaken by JSCE IAC, International Section, ACECC, and Research & Development Section with over 30 committees, state-of-art- civil engineering technologies and projects, great and interesting achievements of civil engineer and researcher once a month.

Glad to see you again. This month we feature two articles that are Civil Engineering History Committee's symposium focusing on river water management in the Netherlands in the modern era, when the Japanese Government invited Dutch engineers to modernize engineering and promote technology education in Japan. The attendees should have many things to learn and find from the symposium. The other article, which is continued to the next issue, is about a road rehabilitation projects implemented in Cambodia and Laos with ODA. The subject road, which runs along the Mekong connecting between Phnom Penh and Kampong Chan province, was severely damaged due to several floods of the Mekong and overloaded vehicles over the years. You find how that rehabilitation projects has made positive influence upon improving not just road traffic, but also neighboring areas' environment and economic activity.

We are looking forward to your comments, feedback, and requests anytime. Thank you

~ Civil Engineering History Committee ~

The Symposium on The Intersection of Civil Engineering and History in the 'A History of River Water Management in the Dutch Republic' Organized by the Subcommittee for Education and Research Promotion

The Committee on the History of Civil Engineering was established as the Committee on Historical Studies in Civil Engineering in 1973 and changed its name to what it is today in 2019. As of August 9, 2024, the committee has eight subcommittees and engages in a wide variety of activities related to the history of civil engineering. Examples of these activities include holding the 44th History of Civil Engineering Research Conference this year, a series of lectures on technologies to restore civil engineering heritage, and surveys on the historic and cultural value of post-war civil engineering facilities. This report focuses on the most recent symposium conducted by the Subcommittee for Education & Research Promotion.



Kazumasa Iwamoto
(Committee on the
History of Civil
Engineering)

The Subcommittee for Education & Research Promotion engages in efforts to expand the scope of education and research in the field of the history of civil engineering. As a part of this, the symposium was conceived with the goal of broadening the scope of research into the history of civil and accumulating knowledge across different disciplines. This would be done by inviting authors of books published in the last few years on topics close to the heart of the history of civil engineering such as architecture, urban planning, and history to discuss analytical methods and methodologies from these various fields. The symposium was titled, "Symposium on the Intersection of Civil Engineering and History in 'A History of River Water Management in the Dutch Republic'" and held in the JSCE Auditorium on March 23, 2024. The

symposium received applications from 344 attendees (20 in person and 324 online). There were specialists not only in civil engineering but also in history and construction, as well as students taking part.

The symposium began with an explanation about the goal of the event. This was followed by Satoshi Nakazawa, Associate Professor at Hiroshima University and an author of ‘A History of River Water Management in the Dutch Republic’, introducing his book. Dr. Nakazawa provided a detailed analysis of the social context of early modern era Netherlands, examining the claims and motivations of key figures involved with rivers such as rulers, administrators, engineers, and scholars based on primary sources. His presentation also offered a comprehensive overview of the development of the concept of ‘healthy rivers,’ including the arguments and perspectives surrounding it. Based on the content of the presentation, the second half of the symposium consisted of a discussion between Dr. Nakazawa and three panelists: Associate Professor Shinichiro Nakamura of Nagoya University, Associate Professor Manabu Kobayashi of the Chiba Institute of Technology, Assistant Professor Kazumasa Iwamoto of the Kyoto Institute of Technology. This discussion covered topics such as the relationship between river management and local governance in the Netherlands from the 18th to the 19th century, the changes in the role of engineers following the establishment of higher education institutions, and methods for analyzing related primary archives.

This symposium highlighted that even when civil engineering and history share common research subjects, the detailed perspectives and analytical approaches are significantly different, indicating the potential to further expand the scope of the history of civil engineering. As such, by expanding the scope through presenting the results of research and surveys and holding related events, the Committee on the History of Civil Engineering and its related subcommittees will continue to advance efforts to deepen the field of the history of civil engineering.

土木史委員会 教育・研究推進小委員会 連続シンポジウム
『近世オランダ治水史』
にみる土木工学と歴史学の接点

日時 2024年3月23日(土) 15:00~17:00
形式 対面とオンライン(Zoom)のハイブリッド
会場 土木学会講堂(四ツ谷) 東京都新宿区四谷1丁目 外濠公園内

趣旨
教育・研究推進小委員会では、土木史研究の裾野の拡大に向けて、建築・都市・歴史といった隣接分野の研究者をお招きして、分野横断的な視点や方法論について意見を交換する「連続シンポジウム」を開催します。第1回は、歴史学分野の中澤聡先生をお招きして、『近世オランダの治水史』を題材に意見交換します。土木史研究の初学者・若手からベテランまで、みなさまの参加をお待ちしています。

講師	プログラム
中澤 聡 (広島大学准教授)	15:00~15:05 開会あいさつ
紹介著書 近世オランダ治水史 <small>(健全なる河川)と地方分水をめぐる知識と権力 (東京大学出版会, 2023年3月)</small>	15:05~15:45 講師発表 15:45~16:15 パネルディスカッション 16:15~17:00 討論・質疑
パネリスト 中村 晋一郎 (名古屋大学准教授) 小林 学 (千葉工業大学准教授) 岩本 一将 (京都工芸繊維大学助教)	参加申込について 土木学会行事サイトからお申し込みください。 参加URL: https://www.jsce.or.jp/events 定員: 会場 100名、オンライン 500名 *土木学会認定CPDプログラムの対象となります。
問い合わせ 土木学会 東京都新宿区四谷1丁目(外濠公園内) Email: k.ozawa@jsce.or.jp	主催 公益社団法人土木学会・土木史委員会 教育・研究推進小委員会

Symposium Poster

【Reported by Kazumasa Iwamoto (Secretary-General, Subcommittee for Education & Research Promotion, Committee on the History of Civil Engineering)】

ODA Road Rehabilitation Projects Stretching 253 Kilometers in Developing Countries (Part 1)

Since 1997, I have been involved in four national road rehabilitation projects totaling 253 kilometers of road in Cambodia and Laos. The following is a table summarizing the projects. This report will cover projects (1) to (3).



Hideaki Kamimura
(Obayashi Corporation)

National Road Rehabilitation in Cambodia and Laos										
	Name of Project	Finace	Distanc e (km)	Construction Period		No. of Road Lane	No. of Asphalt Layer	Bridge Construction	No. of Encountere d UXO	Remarks
				year from	year till					
(1)	Cambodia National Road No.6&7	JICA Grant Aid	75.0	1997	1999	2	1 Layer (5cm x 1)	Newl construction of 13 nos of Bridge (10m~169m)	118	Project suspended tentatively due to plotical unrest
(2)	Laos National Road No.9	JICA Grant Aid	72.9	2000	2002	2	2 Layer (5cm x 2)	only overlay	450	Construction with Detour along whole stretch
(3)	Laos National Road No.9	JICA Grant Aid	58.1	2012	2015	2	2 Layer (5cm x 2)	None	103	2 section divided apart with distance 60km
(4)	Cambodia National Road No.5	JICA Loan	47.0	2019	2022	4	3 Layer (5cm x 3)	New construction of 6 nos of Bridge (15m~100m)	160	Preventive measure for 3rd party traffic accidents.
			Total	253.0					831	

(1) Rehabilitation project of National Roads 6 and 7 in Cambodia (1997 to 1999)

This project was complete rehabilitation work covering 75 kilometers of the national road connecting Phnom Penh and Kampong Cham province. In July 1997 under circumstances of political unrest, Cambodia was a country in which party rivalry was intense and it was unsafe to live and work there, with gunfire all around. Because of this, we expatriate staff tentatively evacuated to neighboring



The bridge that was used for the design of the 200-riel note in Cambodia

Thailand. Even when the project resumed, the country remained unsafe, and we oversaw the construction efforts under the watchful eye of armed security. Measures against the risk of land mines were also essential. At the time, there was not a lot of traffic in Cambodia, and the road design consisted of only one top layer of 5 cm-thick asphalt paving. Later, in 2001, traffic began to increase with the opening of the Mekong River Bridge in Kampong Cham. Back then, even Phnom Penh, the capital, did not experience congestion like it does today.

(2) Rehabilitation project of National Road 9 in Laos (2000 to 2002)

This was a project to improve a six-meter wide road into twelve-meter wide asphalt paving. All the work, from production of crushed stone to laying the asphalt paving, was conducted by efforts under a direct employment system. The first job was to find a quarry for stone materials for use in the road rehabilitation. After searching about twenty potential mountains with the persons in charge on the Laos side and repeatedly conducting rock

drilling investigations in the jungle, only then did we find a quarry that provided a sufficient volume of stone reverses. During the work to build an access road to the quarry, we encountered unexploded ordnances (UXO) that had been dropped during the Vietnam War. While a total of 450 unexploded ordnances were discovered, the Laos military found and disposed of them, enabling us to produce crushed stones without any accidents. As it was a nine-kilometer-long access road within an untouched forest with poor water drainage, the road would quickly become muddy when it rained, suffering maintenance of the road during the day and night throughout the rainy season.



An unexploded ordnance discovered from the quarry access road (my helmet is on the side)

By making a 73-kilometer-long detour road (the bridge parts were Bailey Bridges) along National road, the national road construction work could be done across the entire road in one go, reducing the number of construction joints and improving the quality of the work. The national road was located in low-lying areas such as in the rice field, and so huge effort was spent on maintaining the detour road during the rainy season.

In 2002, Takao Kawakami, Preside of JICA, visited the Seno Intersection during its construction. I got to hear in detail about the technical transfer to the local people, and he praised Obayashi's efforts for the road construction work done by hand as a result of the technical transfer through direct control of local Laos construction workers and engineers. Some photos taken of the construction site have become commemorative postage stamps.



Paving of Seno Intersection



Roadbed installation



Collecting rough stones (stacking stones and drilling holes for blasting purposes)

(3) Rehabilitation project of National Road 9 in Laos (2012 to 2015)

In 2007, with the opening of the Second Mekong International Bridge connecting Thailand and Laos in Savannakhet, the restriction on the axle load of vehicles was raised from 9 tons to 11 tons. This resulted in an increase in the amount of heavy vehicle traffic, with existing damage to National Road 9 (the road remained a nine-ton axis load design) becoming more prominent. This led to an order being placed for road repair works. The scope was the rehabilitation for 58.1-kilometer road including the aforementioned 40-kilometer Obayashi

section. We received repeated criticism from the Engineer saying that the problems were a result of Obayashi's construction work from the previous project. As I anticipated that the real reason behind the road damage was overloaded vehicles, I took the decision as the project manager to place our Laos staff at the weight checkpoints 24 hours a day to monitor the weight of vehicles across the 93-week construction period. The collected data (details such as overloading and so on of approximately 40,000 trucks) was shared with the Department of Roads, Ministry of Public Works and Transport (MPWT), Embassy of Japan in the Lao PDR, and JICA towards the later stages of the construction work. This information was also shared with the Engineer in the monthly report. At the time, we received praise from JICA senior advisor Moriyasu Furuki (former Executive Director of JSCE), stating, "This is very valuable data showing the reality of vehicle overloading in developing countries including Africa." We held a joint presentation about this at JSCE's annual conference event.



Damage to old paving as a result of use by excessively heavy vehicles (vehicles from Vietnam)

Embassy of Japan in the Lao PDR, and JICA towards the later stages of the construction work. This information was also shared with the Engineer in the monthly report. At the time, we received praise from JICA senior advisor Moriyasu Furuki (former Executive Director of JSCE), stating, "This is very valuable data showing the reality of vehicle overloading in developing countries including Africa." We held a joint presentation about this at JSCE's annual conference event.



Overloaded trailer transporting blocks of wood (broke down in the center of the road due to the vehicle being too heavy)

In August 2013, when visiting the construction site, JICA President Akihiko Tanaka was impressed with the hand-built monument of the previous construction project (completed in 2002), declaring, "This is meticulous work."

Later, in 2016, in response to cracks in the road surface that occurred during the defect liability period, I returned

to the site and carried out pavement repairs by milling and overlay. At this time, I did all the asphalt mixing design work (including aggregate testing) myself.

According to agreement of the Ministry of Public Works and Transport, the issues of controlling overload vehicles was recently transferred into Department of Roads (DOR) instead of Department of Transport (DOT). It seems that measures against overloading are being implemented nationwide in Lao under the new organization.



Construction monument visited by President Tanaka (made using quarry stones)

【Reported by Hideaki Kamimura, Civil Engineering Construction Project Department, Asia-Pacific Regional Head Quarters, Obayashi Corporation】

Updates



- ◆ In response to 2024 Noto Peninsula Earthquake
<https://www.jsce-int.org/node/873>
- ◆ The International Infrastructure Archives
– A Compilation of Japan’s Greatest Projects in Transfer of Civil Engineering Technology in Service –
<http://www.jsce.or.jp/e/archive/>
- ◆ IAC “News Pick Up!!” on the JSCE Japanese website
https://committees.jsce.or.jp/kokusai/iac_dayori_2024
- ◆ Summary of featured articles in JSCE Magazine Vol. 109, No. 9, September 2024
<http://www.jsce-int.org/pub/magazine>
- ◆ Journal of JSCE
<https://www.jstage.jst.go.jp/browse/journalofjsce>
- ◆ Safe and Healthy Work in the Digital Age 2023-2025 Campaign
<https://healthy-workplaces.osha.europa.eu/en/media-centre/events/launch-ceremony-healthy-workplaces-campaign-safe-and-healthy-work-digital-age-2023-2025>
- ◆ 【Abstract Deadline: December 20, 2024】 CECAR10 : <http://www.cecar10.org/>
- ◆ IABSE Symposium Tokyo 2025
<https://www.iabse.org/Tokyo2025/>
- ◆ 16th International Workshop on Micropiles
<https://www.ismicropiles.org/workshops.asp>

§ IAC News Subscription §

The IAC News is one of the communication tools to share information and ideas with the members. We would like to invite you, your friends and colleagues to join the communication and to subscribe the IAC News. Please register online: (<http://www.jsce-int.org/node/150>). We look forward to meeting you.

§ IAC Facebook §

Recent activity of International Activities Center is introduced on this Facebook. Please see this home page (<https://www.facebook.com/JSCE.en>).

Comments and Questions

Please send us your feedback and comments to help us improve the IAC news. We look forward to hearing from you.
JSCE IAC: iac-news@jsce.or.jp